Connecticut Department of Energy and Environmental Protection

Connecticut Department of
ENERGY & ENVIRONMENTAL PROTECTION

National Emission Standards for Hazardous Air Pollutants for Reciprocating Internal Combustion Engines (RICE Rule)

40 CFR 63 Subpart ZZZZ
Area Source New Emergency Engine ≤500 Horsepower

Connecticut Department of Energy and Environmental Protection

Compliance Requirements

You must comply with either the Compression Ignition (CI) or Spark Ignition (SI) New Source Performance Standards (NSPS), as applicable, upon startup.

Photo credit: EPA

Compression Ignition New Source Performance Standards (CI NSPS)

You are subject to the CI NSPS (40 CFR 60 subpart IIII) if your emergency CI engine was:

–Constructed (ordered*) after July 11, 2005 **AND** manufactured after April 1, 2006 (July 1, 2006 for fire pump engines)

OR

–Modified/reconstructed after July 11, 2005

*NOTE: For the purposes of this rule, the date that construction commences is the date the engine is ordered by the owner or operator.

Compression Ignition New Source Performance Standards (CI NSPS)

If you are subject to the CI NSPS, you must meet these requirements:

Emission and Operating Limits, Testing Requirements, Monitoring Requirements:

- See Table (later in the module)
- Must meet these standards for the life of the engine

Fuel Requirements:

- As of October 1, 2007 – 500 ppm sulfur diesel (LSD)
- As of October 1, 2010 – 15 ppm sulfur diesel (ULSD) for engines <30 l/cyl displacement
  - –You may use up any diesel fuel acquired prior to October 1, 2010 that does not meet the requirements for nonroad diesel fuel.
- As of June 1, 2012 – 1,000 ppm sulfur diesel for engines ≥30 l/cyl displacement

Compression Ignition New Source Performance Standards (CI NSPS)

If you are subject to the CI NSPS, you must meet these requirements:

Compliance Requirements:

- If you have 2007 model year or later engine with displacement <30 l/cyl or a fire pump engine, 2008-2011 model year or later, depending on engine size:
  - Purchase certified engine
  - Install, configure, operate and maintain engine per manufacturer's instructions/procedures
    - –Performance testing not required
    - –Can operate differently than manufacturer's recommendations, but must then do performance test to show compliance

- Engines not required to be certified (Choose 1 of the following to demonstrate compliance):
  - Purchase certified engine
  - Keep records of performance test conducted on similar engine
  - Keep records of engine manufacturer data indicating compliance
  - Keep records of control device vendor data indicating compliance
  - Conduct initial performance test

- Engines ≥30 l/cyl displacement:
  - Initial performance test
  - Continuously monitor operating parameters

Compression Ignition New Source Performance Standards (CI NSPS)

Recordkeeping/Reporting:

- Install non-resettable hour meter and record hours of operation
- If engine is equipped with diesel particulate filter (DPF):
  - Install backpressure monitor and keep records of corrective actions

Emergency CI Engine Category	Date Constructed/ Reconstructed/ Manufactured	Emission Standards[a,b,c,d]	Importing/ Installing Requirements	Compliance Requirements	Testing Requirements	General Provisions (40 CFR part 60)
Pre-2007 model year <10 l/cyl (except fire pump engines)	Commenced construction after 7/11/2005 and manufactured after 4/1/2006	60.4205(a) Table 1	60.4208(a), (b), (h), (i)	60.4211(a), (b), (f), (g)	60.4212	Table 8
Pre-2007 model year 10 l/cyl≤displacement<30 l/cyl (except fire pump engines)		60.4205(a) 40 CFR 94.8(a)(1)				
2007 model year and later <30 l/cyl (except fire pump engines)		60.4205(b) 60.4202		60.4211(a), (c), (f), (g)		
Fire pump engines <30 l/cyl manufactured prior to the model years in Table 3 of 40 CFR part 60, subpart IIII	Commenced construction after 7/11/2005 and manufactured as a certified NFPA fire pump engine after 7/1/2006	60.4205(c) Table 4	60.4208(h), (i)	60.4211(a), (b), (f), (g)		
Fire pump engines <30 l/cyl manufactured during or after the model year that applies to your fire pump engine power rating in Table 3 of 40 CFR part 60, subpart IIII				60.4211(a), (c), (f), (g)		
≥30 l/cyl (except fire pump engines)	Commenced construction after 7/11/2005 and manufactured after 4/1/2006	60.4205(d)(1) and (2)	60.4208(a), (b), (h), (i)	60.4211(a), (d), (f), (g)	60.4213	
Modified/Reconstructed <30 l/cyl	Modified or reconstructed after 7/11/2005	Pre-2007 Model Year: 60.4205(a) 2007 Model Year and Later: 60.4205(b)	60.4208(i)	60.4211(a), (e), (f), (g)	60.4212 60.4204(e)	
Modified/Reconstructed ≥30 l/cyl		60.4205(d)(1)-(3)			60.4213	

[a]Per 60.4200(e), facilities with ICE that are acting as temporary replacement units and that are located at a stationary source for <1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this rule with regard to such engines' requirements in 40 CFR 60.4207.

[b]Per 60.4215(a), ICE with a displacement of <30 l/cyl that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the applicable emission standards in §60.4202 and §60.4205.

[c] ICE with a displacement of ≥30 l/cyl that are used in Guam, American Samoa, or the Commonwealth of the Northern Mariana Islands are required to meet the emission standards in 60.4215(c).

[d]Special requirements apply to engines used in Alaska. Please refer to 60.4216 for the specific requirements that apply.

Spark Ignition New Source Performance Standards (SI NSPS)

You are subject to the SI NSPS (40 CFR 60 subpart JJJJ) if your emergency SI engine was:

–Constructed (ordered*) after June 12, 2006 **AND** either: >25 HP manufactured on/after January 1, 2009 or ≤25 HP and manufactured on/after July 1, 2008

OR

–Modified/reconstructed after June 12, 2006

*NOTE: For the purposes of this rule, the date that construction commences is the date the engine is ordered by the owner or operator.

Spark Ignition New Source Performance Standards (SI NSPS)

If you are subject to the SI NSPS, you must meet these requirements:

- **Emission and Operating Limits, Testing Requirements, Monitoring Requirements:**
  - See Table (later in this module)
  - Must meet these standards for the life of the engine

- **Fuel Requirements:**
  - Gasoline engines must use gasoline that meets the sulfur limit in 40 CFR 80.195 – cap of 80 ppm

- **Compliance Requirements:**
  - If you have a *certified* engine:
    - Install, operate, and maintain engine according to manufacturer's instructions
    - If you do not operate/maintain according to manufacturer's instructions for engines ≥100 HP:
      - –Keep maintenance plan and maintenance records, operate consistent with good air pollution control practices
      - –Initial performance test and retest if engine is rebuilt or undergoes major repair or maintenance
  - If you have a *non-certified* engine >25 HP:
    - Maintenance plan
    - Initial performance test and retest if engine is rebuilt or undergoes major repair or maintenance

Spark Ignition New Source Performance Standards (SI NSPS)

<u>If you are subject to the SI NSPS,</u> <u>you must meet these requirements:</u>

- **Monitoring Requirements:**
  - Install non-resettable hour meter if:
    - –500 HP built on/after July 1, 2010
    - –130≤HP<500 built on/after January 1, 2011
    - –<130 HP built on/after July 1, 2008
- **Recordkeeping/Reporting:**
  - Documentation of certification (EPA Certificate of Conformity)
  - Records of engine maintenance
  - Records of hours of operation
  - Initial notification for non-certified engines with HP=500
  - Notification of Intent to Conduct Performance Testing 30 days prior to test
  - Results of performance testing within 60 days of test

Photo credit: EPA

EPA Certificate of Conformity

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2012 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT OF 1990

OFFICE OF TRANSPORTATION AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: Generac Power Systems, Inc.
(U.S. Manufacturer or Importer)

Certificate Number: CGNXB06.82NN-012

Effective Date: 10/26/2011
Expiration Date: 12/31/2012

Byron J. Bunker, Acting Division Director
Compliance Division

Issue Date: 10/26/2011
Revision Date: N/A

Manufacturer: Generac Power Systems, Inc.
Engine Family: CGNXB06.82NN
Certificate Number: CGNXB06.82NN-012
Certification Type: Stationary (Part 60)
Fuel : Natural Gas (CNG/LNG)
Emission Standards : NMHC + NOx (g/kW-hr) : 13.4
CO (g/kW-hr) : 519
HC + NOx (g/kW-hr) : 13.4
Emergency Use Only : Y

Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547) and 40 CFR Part 60, 1065, 1068, and 60 (stationary only and combined stationary and mobile) and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following nonroad engines, by engine family, more fully described in the documentation required by 40 CFR Part 60 and produced in the stated model year.

This certificate of conformity covers only those new nonroad spark-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Part 60 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 60. This certificate of conformity does not cover nonroad engines imported prior to the effective date of the certificate.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068.20 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Part 60. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Part 60.

This certificate does not cover large nonroad engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

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Photo credit: EPA

Emergency SI Engine Category	Date Constructed/ Reconstructed/ Manufactured	Size/ Engine Type/ Fuel	Emission Standards	Importing/ Installing Requirements[6]	Monitoring Requirements	Compliance Requirements				Notification, Reports, and Records Requirements	General Provisions (40 CFR part 60)
						Engines being operated and maintained in a certified manner[2]		Engines being operated and maintained in a non-certified manner[3]			
						General Compliance	Performance Testing	General Compliance	Performance Testing		
>25 HP	Commenced construction after 6/12/2006 and manufactured on or after 1/1/2009	>25 HP Gasoline	60.4231(b) 60.4233(b)	60.4236(c),(d)	If <130 HP built on or after 7/1/2008, or 130≤HP<500 built on or after 1/1/2011, or ≥500 HP built on or after 7/1/2010: 60.4237	60.4243(a)(1) If using AFRC: 60.4243(g) 40 CFR part 1068, subparts A-D.	None	If using AFRC: 60.4243(g) **<100 HP:** 60.4243(a)(2)(i) **100<HP≤500**: 60.4243(a)(2)(ii)	**<100 HP**: None required **100<HP≤500**: 60.4243(a)(2)(ii)[6] 60.4244	60.4245(a), (b), (e)	60.4246 Table 3
		>25 HP Rich Burn LPG	60.4231(c) 60.4233(c)						**<100 HP**: None **100<HP≤500**: 60.4243(a)(2)(ii)[5] 60.4244		
		25<HP<100 (except gasoline and rich burn LPG)	60.4233(d)[4]	60.4236(c)		If using AFRC: 60.4243(g) **Certified**: 60.4243(b)(1) **Non-certified**: 60.4243(b)(2)	**All Engines:** If natural gas engine and using propane as alternative fuel for more than 100 hrs/yr: 60.4243(e) **Non-Certified**: 60.4243(b)(2)(i)[5], 60.4244	**All Engines:** 60.4243(a)(2)(i) If using AFRC: 60.4243(g)	**Certified**: None **Non-Certified**: All Non-Certified Engines >25 HP: 60.4244 25>HP≤500: 60.4243(b)(2)(i)[5] **All Engines**: If natural gas engine and using propane as alternative fuel for more than 100 hrs/yr: 60.4243(e)	60.4245(a), (b). (e) If natural gas engine and using propane as alternative fuel solely during emergency operations: 60.4243(e)	
		≥100 HP (except gasoline and rich burn LPG)	60.4233(e)[5] Table 1				**All Engines:** If natural gas engine and using propane as alternative fuel for more than 100 hrs/yr: 60.4243(e) **Non-Certified**: 25>HP≤500: 60.4243(b)(2)(i)[5], 60.4244	If using AFRC: 60.4243(g) **100<HP≤500**: 60.4243(a)(2)(ii)	**All Engines:** If natural gas engine and using propane as alternative fuel for more than 100 hrs/yr: 60.4243(e) **Certified**: ≥100 HP: 60.4244 100≤HP≤500: 60.4243(a)(2)(ii) **Non-Certified**: >25 HP: 60.4244 25>HP≤500: 60.4243(b)(2)(i)[5]		
Modified/ Reconstructed	Modified or reconstructed after 6/12/2006	≤25 HP	60.4233(f)(1)	None		If using AFRC: 60.4243(g) 60.4243(i)				60.4245(a) 60.4245(b), (e)	
		>25 HP Gasoline	60.4233(f)(2)								
		>25 HP Rich Burn LPG	60.4233(f)(3)							60.4245(a), (b), (d), (e)	
		>25 HP natural gas and lean burn LPG	60.4233(f)(4)								
		>25 HP Landfill/Digester Gas	60.4233(f)(5)								

[1]Facilities with engines that are acting as temporary replacement units and that are located at a stationary source for <1 year and that have been properly certified as meeting the standards that would be applicable to such engine under the appropriate nonroad engine provisions, are not required to meet any other provisions under this rule with regard to such engines.

[2]If you operate and maintain the certified engine and control device according to the manufacturer's emission-related instructions, you are operating in a certified manner.

[3]If you do not operate and maintain the certified engine and control device according to manufacturer's emission-related instructions, your engine will be considered a non-certified engine.

[4]ICE with a maximum engine power >19 KW (25 HP) and <75 KW (100 HP) manufactured prior to January 1, 2011, that were certified to the standards in Table 1 to this rule applicable to engines with a maximum engine power ≥100 HP and <500 HP, may optionally choose to meet those standards.

[5]If you own/operate an engine that is ≤500 HP and you purchase a non-certified engine or you do not operate and maintain your certified engine and control device according to the manufacturer's emission-related instructions, you are required to perform initial performance testing as indicated in this section, but you are not required to conduct subsequent performance testing unless the engine is rebuilt or undergoes major repair or maintenance. A rebuilt ICE means an engine that has been rebuilt as that term is defined in 40 CFR 94.11(a).

[6]This section does not apply to ICE that have been modified or reconstructed, and does not apply to engines that were removed from one existing location and reinstalled at a new location.

NSPS Emergency Engine Requirements

- No limits on hours of operation for emergency service
- 100 hours/year allowed for:
  - Maintenance and testing
  - Emergency demand response for periods in which the Reliability Coordinator under the North American Electric Reliability Corporation Reliability Standard EOP-002-3, Capacity and Energy Emergencies, or other authorized entity as determined by the Reliability Coordinator, has declared an Energy Emergency Alert Level 2.; and
  - Responding to situations when there is at least a 5% or more change in voltage or frequency.
  - 50 of the 100 hours can be used for non-emergency purposes
    - 50 hours can be used for peak shaving or non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement if **all** of the following conditions are met:
      - Engine is dispatched by the local balancing authority or local transmission and distribution system operator
      - Dispatch is intended to mitigate local transmissions and/or distribution limitations so as to avert potential voltage collapse or line overloads that could lead to the interruption of power supply in a local area or region
      - Dispatch follows reliability, emergency operation or similar protocols that follow specified North American Electric Reliability Corporation (NERC), regional, state, public utility commission or local standards or guidelines
      - Power is provided only to the facility itself or to support the local transmission and distribution system
      - Owner/operator identifies and records the entity that dispatches the engine and the specific NERC, regional, state, public utility commission or local standards or guidelines that are being followed for dispatching the engine. The local balancing authority or local transmission and distribution system operator may keep these records on behalf of the engine owner/operator.

Emergency Engine Requirements

- If an emergency engine operates for more than allowable hours for non-emergency purposes, it will need to meet all non-emergency engine requirements.
- If engine is located in CT, also comply with CT emergency engine requirements
- If located elsewhere, comply with State emergency engine requirements

Photo credit: EPA

Emergency Engine Requirements

- Starting in 2015, if you operate, or commit to operate, >15 hours annually as part of blackout and brownout prevention, also known as **emergency demand response,** or for local reliability**,** and your engine has a maximum power of >100 HP**:**
  - –Collect and submit an annual report including location, dates and times of operation.
    - First report must cover calendar year 2015 and is due March 31, 2016.
    - Submit electronically using the form in the Compliance and Emissions Data Reporting Interface that is accessed through EPA's Central Data Exchange at www.epa.gov/cdx.

CT Emergency Engine Definition

According to Sec. 22a-174-22(a)(3) of the RCSA, "emergency engine" means a stationary reciprocating engine or a turbine engine which:

- Provides mechanical/electrical power only during periods of
  -testing and scheduled maintenance or
  -during an emergency or
  -in accordance with a contract ensuring electricity for use within the state of CT during an OP-4, Step 6 event
- Does not include an engine for which the owner/operator is party to any other agreement to sell electrical power from such engine to an electricity supplier, or otherwise receives any reduction in the cost of electrical power for agreeing to produce power during periods of reduced voltage or reduced power availability.

Note: Engines operating under RCSA Sections 22a-174-3b and 3c must comply with additional requirements

CT Emergency Engine Requirements

•Only operate during emergencies, maintenance/scheduled testing, or during an OP-4, Step 6 event

•Emergency hrs of operation: no limit (unless subject to 22a-174-3b or 3c)

•Engine cannot be used as part of any other agreement or financial arrangement with another entity

If operating under RCSA Sec. 22a-174-3b:

•Emergency hrs of operation: 300 hr/yr limit

•Any nongaseous fuel consumed by engine shall not exceed sulfur content of 0.0015%, dry basis

If operating under RCSA Sec. 22a-174-3c:

No restriction on hrs of use or fuel sulfur content; however, total facility purchases of fuel are extremely limited

CT and Federal Emergency Engine Requirements

Federal Only	Common to Both	State Only
•100 hr/yr limit: -Testing and maintenance checks -Readiness testing -Emergency demand response -Responding to a 5% or more change in voltage •50 hr/yr of the 100 hr/yr limit: -Non-emergencies if no financial arrangement •50 hr/yr allowed for peak shaving, non-emergency demand response, or to generate income for a facility to an electric grid or otherwise supply power as part of a financial arrangement if **all** specified conditions are met	•Emergency hrs of operation: no limit (unless subject to 22a-174-3b or 3c)	•Only operate during emergencies, maintenance/scheduled testing, or during an OP-4, Step 6 event •Engine cannot be used as part of any other agreement or financial arrangement with another entity **If operating under RCSA Sec. 22a-174-3b:** •Emergency hrs of operation: 300 hr/yr limit •Any nongaseous fuel consumed by engine shall not exceed sulfur content of 0.0015%, dry basis **If operating under RCSA Sec. 22a-174-3c:** No restriction on hrs of use or fuel sulfur content, however total facility purchases of fuel are extremely limited

Where do I send notifications and reports?

Unless otherwise indicated, send reports to:

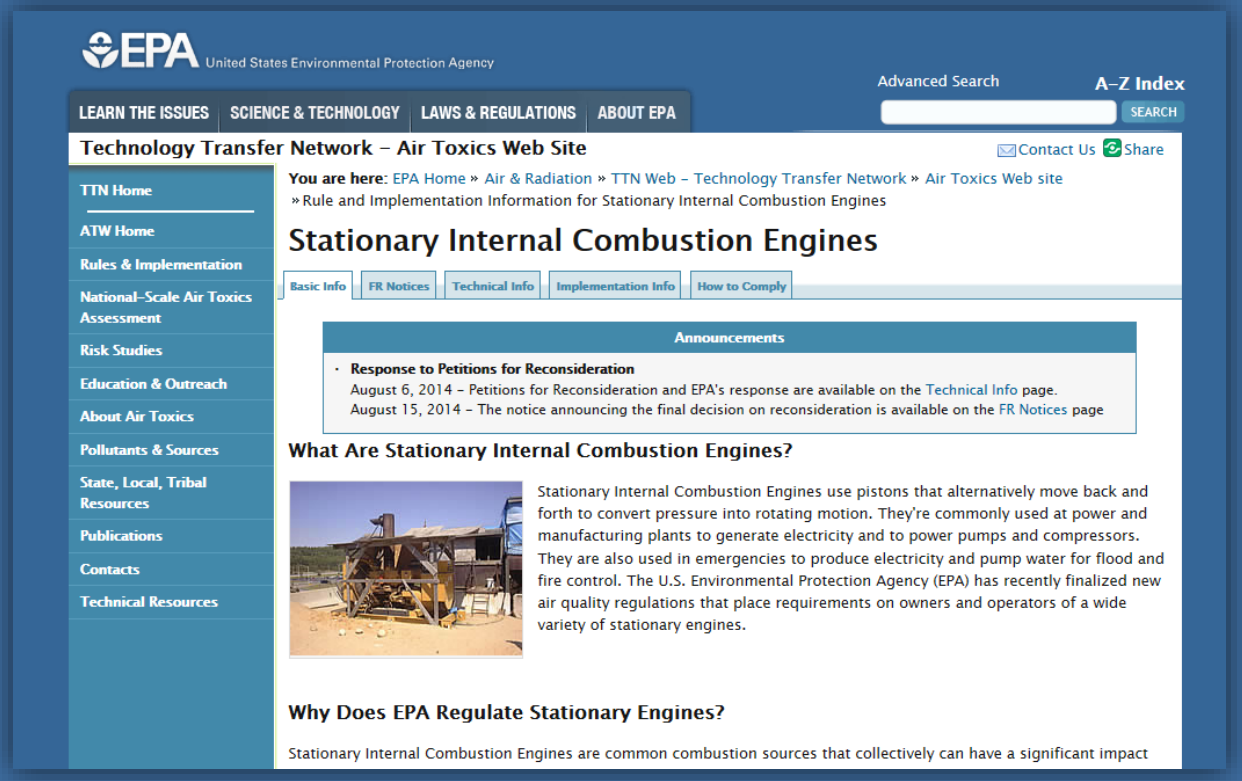
EPA REGION 1:

US Environmental Protection Agency
5 Post Office Square, Suite 100, Mail code: OES04-2
Boston, MA 02109-3912
Attention: Air Clerk

Visit the EPA RICE Compliance Page

www.epa.gov/ttn/atw/icengines

- Fact sheets
- Regulations
- Example notifications
- Announcements
- Q & A documents
- Testing advice
- Recorded webinars
- …and more!



Take Aways

Engine Type:

•A new or reconstructed emergency engine at an area source with a site rating of less than or equal to 500 horsepower

Compliance Date:

•Upon startup

Compliance Requirements:

•Comply with all CI or SI NSPS requirements, if applicable

•Comply with all NSPS and State emergency engine requirements